

BAB VIII

PERHITUNGAN SLOOF S2

8.1 Perencanaan Sloof

- Beban momen lentur

$$L_s := 13 - 0.5 = 12.5 \text{ m}$$

$$\text{Dimensi sloof: } b := 400 \text{ mm}$$

$$h := 700 \text{ mm}$$

$$\text{Beban mati tembok } W_t := 250 \cdot 5 = 1250 \text{ kg/m'}$$

$$\text{Berat sendiri sloof } W_s := 0.4 \cdot 0.7 \cdot 2400 = 672 \text{ kg/m'}$$

$$q_{tot} := W_t + W_s = 1922 \text{ kg/m'}$$

$$q_u := 1.2 \cdot q_{tot} = 2306.4 \text{ kg/m'}$$

Momen berfaktor Mu :

$$M_u := \frac{q_u \cdot L_s^2}{10 \cdot 100} = 360.375 \text{ kNm}$$

- Beban aksial (10% Pkolom)

$$P_{kolom} := 924.276 \text{ kN}$$

$$P_s := 0.1 \cdot P_{kolom} = 92.428 \text{ kN}$$

Direncanakan menggunakan :

tulangan utama 7D22(two face)

senggang $\phi 10$

$$\text{daksen} := 40 + 10 + 11 = 61 \text{ mm}$$

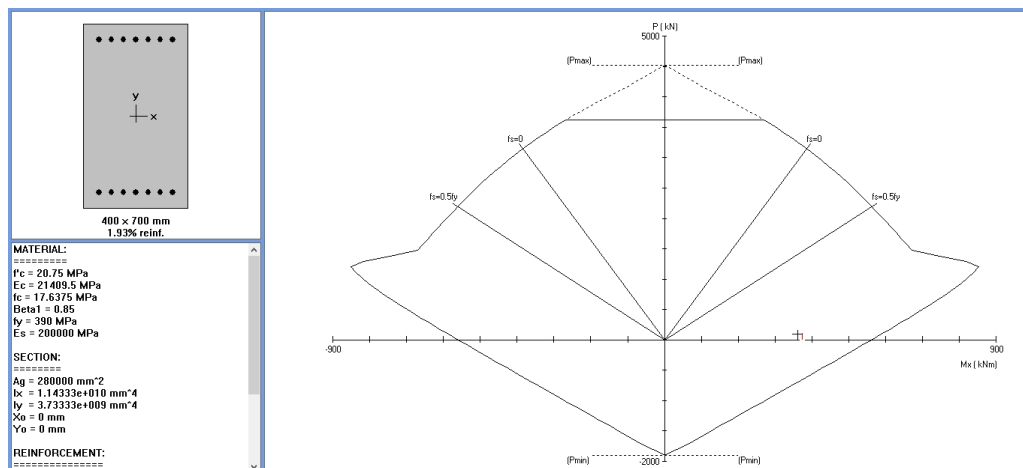
$$d := h - \text{daksen} = 639 \text{ mm}$$

$$f_y := 390 \text{ Mpa}$$

$$f_c := 20.75 \text{ Mpa}$$

$$E_s := 200000 \text{ Mpa}$$

Kontrol menggunakan PCACOL



- Tulangan Geser Sbof

$N_u := 92.428 \text{ kN}$ (Output ETABS)

kuat geser komponen struktur yang dibebani aksial tekan

$$A_g := b \cdot h = 280000 \text{ mm}^2$$

$$V_c := \left(1 + \frac{N_u \cdot 1000}{A_g} \right) \cdot \frac{\sqrt{f_c} \cdot b \cdot d}{6 \cdot 1000} = 258.109 \text{ kN} \quad (\text{SNI 03-2847-200 Ps. 13.3.1.2})$$

$$V_u := \frac{q_u \cdot L_s}{2 \cdot 100} = 144.15 \text{ kN}$$

$$V_s := \frac{V_u}{0.6} - V_c = -17.86 \text{ kN}$$

karena gaya geser beton mampu menahan gaya geser yang bekerja maka cukup dipasang tulangan geser $\phi 10$ -150 pada daerah tumpuan & $\phi 10$ -200 pada daerah lapangan.